

Phase (check one)	Type (check one)
<input checked="" type="checkbox"/> Initial Site Investigation <input type="checkbox"/> Corrective Action Feasibility Investigation <input type="checkbox"/> Corrective Action Plan <input type="checkbox"/> Corrective Action Summary Report	<input type="checkbox"/> Work Scope <input checked="" type="checkbox"/> Technical Report <input type="checkbox"/> PCF Reimbursement Request <input type="checkbox"/> General Correspondence

INITIAL SITE INVESTIGATION

Hillside Elementary School
 Hillside Avenue
 Newport, VT 05855

SMS Site #94-1609
 UST Facility #3342455

A Facility Owned By:
 OENSU
 80 Highland Avenue, Suite #4
 Newport, VT 05855
 (802) 334-8598
 Contact: Paul Moccia

Prepared By:
 Dufresne-Henry, Inc.
 Precision Park
 North Springfield, VT 05150
 (802) 886-2261
 Contact: Bruce H. Cox, P.E.

August 8, 1994

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INITIAL SITE INVESTIGATION

**Hillside Elementary School
Hillside Avenue
Newport, VT 05855**

**SMS Site #94-1609
UST Facility #3342455**

Newport City School District

**A Facility Owned By:
OENSU
80 Highland Avenue, Suite #4
Newport, VT 05855
(802) 334-8598
Contact: Paul Moccia**

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August 8, 1994



August 8, 1994

Mr. Paul C. Moccia
OENSU
80 Highland Avenue, Suite #4
Newport, Vermont 05855

Re: Initial Site Investigation
Hillside Elementary School
DH 414026

Dear Mr. Moccia:

Dufresne-Henry has completed an Initial Site Investigation in accordance with our Professional Services Agreement dated June 28, 1994. The investigation consisted of the preparation of a work plan and Health and Safety Plan, a limited soil vapor survey, and a receptor study. This report documents the work completed on the site.

The site Health and Safety Plan and the work plan are included with this report as Attachment A. The Scope of Services was based on a letter to you from Mr. Chuck Schwer of the Vermont Sites Management Section dated June 7, 1994.

The Hillside Elementary School is located on the east side of Hillside Avenue in Newport, Vermont as shown on the vicinity map included as Attachment B. The site consists of the school, playground, and paved parking area. The property is situated in a residential area. Topography generally slopes toward the west. The property is served by the municipal water and wastewater system.

On May 17, 1994 a tank closure assessment at the Hillside Elementary School was performed by Dufresne-Henry. At that time one (1) 6,500 gallon #2 heating oil UST was excavated and removed from the site. The tank was found to be in poor condition, containing at least nine perforations. Evidence of contamination was observed in the tank bed. PID readings of headspaced soil samples from the ends of the tank bed were 32 ppm and 56 ppm. Four (4) exploratory test pits were excavated in the vicinity of the tank to make a preliminary determination of the extent of the contaminant plume. The investigation was limited by the nearby foundation of a former building and unknown subsurface utility locations. Construction activities for an addition to the existing school were also in progress. PID readings during that exercise ranged from 10 ppm to 60 ppm. After discussions with State officials, the excavation was backfilled pending additional investigations.

A soil vapor survey was performed by Dufresne-Henry personnel on July 11,

1994. Because of on-going construction at the school addition and a large number of subsurface utilities in the area of interest, it was determined that soil borings and monitoring well installations could not be performed at that time. The entire area around the former tank was declared a "no work zone" by School and construction company officials. The survey consisted of using a 1" diameter hand operated pigtail auger to bore holes to a depth of approximately 4 feet. All probe locations were approved by David Paradee of Pizzagalli Construction and Homer Morin, the Clerk of the Works. A total of 9 probes were completed. Locations were chosen with respect to site conditions and the expected direction of groundwater flow. Locations of the probes are shown on the site sketch included as Attachment C. Each borehole was screened for the presence of Volatile Organic Compounds (VOC's) with a Photovac MicroTIP HL-2000 (10.6 eV lamp, calibrated with isobutylene). PID readings of 0 ppm were observed at each location. No visual or olfactory evidence of contamination was observed. No soil samples for chemical analysis were obtained. The water table was not encountered at any location during the soil vapor survey.

Soils encountered at the time of the tank removal consisted of sand to a depth of approximately 10 feet, which in turn was underlain by clay. The water table was observed at a depth of approximately 9 feet. While the upper several feet of the clay contains some oil, the layer is expected to act as a confining layer for the downward migration of contamination. PID readings exceeding 10 ppm were typically observed in the tank bed and surrounding test pits at depths exceeding 5 feet.

The school and surrounding properties are served by the municipal water and wastewater system. The only surface water in the immediate vicinity of the school is an unnamed stream approximately 400 feet southwest of the building. The Clyde River is approximately 1,600 feet to the south and Lake Memphremagog is about 4,000 feet to the west. The latter two water bodies are expected to control the regional water table. Those influences suggest the probable direction of groundwater flow is to the southwest and west. Both the existing school and the addition have slab on grade foundations. Field reconnaissance and available mapping indicate there are no sensitive receptors in the immediate vicinity of the school, and that the nearest surface water is separated from the former tank by a significant distance.

Per instructions from the State, all foundation slabs were poured on at least one additional layer of polyethylene sheeting. The installation was corroborated in discussions with David Paradee. The poly sheeting should act as an effective barrier against vapors entering the new building. The anticipated direction of groundwater flow should move the plume away from the existing school building.

In summary, an Initial Site Investigation consisting of a soil vapor survey and a receptor study has been completed. No evidence of contamination was observed at

Mr. Paul C. Moccia
August 8, 1994
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any of the soil vapor points. Due to site conditions, probes in the immediate vicinity of the removed UST could not be completed. Site and soil conditions also limited the depth at which the probes were completed. Based on the results of this study and the tank closure assessment, the extent of contamination appears to be limited to the area surrounding the former tank. Precautions taken during the construction of the school addition should be sufficient to prevent vapors from entering the building. It is anticipated that in-situ remediation via biodegradation will occur over time. The school and surrounding properties are on the municipal water and wastewater systems. No potential sensitive receptors in the immediate vicinity of the school were identified.

Specific recommendations at this time are:

1. Install permanent groundwater and/or vapor monitoring wells as site conditions allow upon completion of the school addition. The wells should be monitored quarterly for the first year. Monitoring thereafter will be based on the analytic results. It is understood that site conditions may preclude action on this recommendation.
2. Monitor interior spaces of the new and existing school buildings for petroleum vapors. This can be performed on an informal basis, i.e. by olfactory sense.

We trust this brief report provides the information you and the SMS require to further evaluate this site. With your approval, we will submit a copy of this report to the State on your behalf. If you have any questions regarding our findings or recommendations, please do not hesitate to contact us.

Very truly yours,

DUFRESNE-HENRY, INC.

Bruce H. Cox, P.E.
Environmental Services Division

BHC/dim
cc: Chuck Schwer, SMS

ATTACHMENT A
SITE HEALTH AND SAFETY PLAN
AND
WORK PLAN

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

HEALTH AND SAFETY PLAN
FOR
HILLSIDE ELEMENTARY SCHOOL
NEWPORT, VERMONT

This Health and Safety Plan applies only to Dufresne-Henry, Inc. employees.

PROPOSED ON-SITE ACTIVITIES:

Conduct a soil vapor survey and obtain soil samples as necessary.

PROPOSED DATE(S) OF WORK: July 11, 1994

ANTICIPATED WEATHER CONDITIONS: Temperatures in the 70's - 80's, possible rain, light wind.

PROPOSED SITE INVESTIGATION TEAM:

Personnel	Responsibilities
Bruce Cox	Project Manager
Oscar Garcia	Site Safety Officer
Oscar Garcia	Field Team Leader
Paul Moccia/David Paradee	Site Representative
Chuck Schwer	ANR Representative

All Dufresne-Henry, Inc. personnel arriving or departing the Site should check in and out with the Site Safety Officer. All Dufresne-Henry activities on-site must be cleared through the Field Team Leader or Project Manager.

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

Background Information

Site Status: X Active Inactive Unknown

Site Description (Topography, on-site structures, vegetation, surrounding population, contaminated areas (if known)...Attach site plan)

The site is the Hillside Elementary School on Hillside Avenue in Newport, Vermont. An addition to the school is currently being constructed immediately adjacent to the former UST location. Several underground utilities are known to be in the area. All soil vapor point locations will be approved by School and/or Pizzagalli representatives.

The only known zone of contamination is the vicinity of the former 6,500 gallon #2 heating oil UST.

Site History:

The history of the site is not known. The site has been used as school for a number of years. The date of UST installation is not known.

Field Monitoring or Sampling Data From Previous Site work:

A tank closure assessment of a 6.500 gallon #2 heating oil UST was performed by Dufresne-Henry on May 17, 1994. The tank was found to contain at least nine (9) perforations. Evidence of contamination was observed in the tank bed soils. PID readings from the ends of the tank bed were 32 and 56 ppm. Four (4) exploratory test pits were excavated in the vicinity of the tank. PID readings of 10 - 60 ppm were observed. Soils were backfilled pending further investigations.

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

HAZARD REFERENCE

Waste Types:

☒ Liquid ☒ Solid (soil) ☐ Sludge ☒ Vapor ☐ Unknown

Waste Characteristics:

☐ Corrosive ☒ Ignitable ☐ Radioactive
☒ Volatile ☐ Toxic ☐ Reactive
☐ Unknown ☐ Other ☐ Persistent

Specific Substances of Greatest Concern (if known): #2 Heating oil.

Hazard Evaluation:

Task: Soil Vapor Survey ☒ Low ☐ Medium ☐ High

Identification of Hazards: #2 Heating oil.

Task: ☐ Low ☐ Medium ☐ High

Identification of Hazards:

Task: ☐ Low ☐ Medium ☐ High

Identification of Hazards:

Task: ☐ Low ☐ Medium ☐ High

Identification of Hazards:

Other Physical Hazards: (weather, heavy equipment, site structures...)

Construction equipment, weather, underground utilities

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

Hazard Assessment:

OVERALL HAZARD: _____ Serious _____ Moderate X Low
 _____ Unknown

On-Site Control

Site control is necessary to minimize potential exposure of workers to hazardous waste/materials, protect the public from the Site's chemical and physical hazards, and to facilitate work activity. The procedures to be followed involve the establishment of Site work zones, Site security, and safe work practices.

The on-Site staging area and support zone has been established at:

The Pizzagalli Construction job trailer.

The personal contamination reduction zone (decon area) has been established at:

The site of the former UST.

During the intrusive work, the exclusion area will be defined as follows:

The decontamination of sampling and/or heavy equipment will be conducted:

The site of the former UST.

These sub-regions of on-Site control have been established in order to reduce the potential cross contamination and proliferation of contamination by potentially contaminated equipment and personal protective equipment.

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JOB NO.: 414026

SITE ACTIVITIES

Required Personal Protective Equipment (PPE)

<u>Task</u>	<u>Entry Level of Protection</u>	<u>Monitoring Equipment</u>	<u>Upgrade/Downgrade Contingency</u>
Soil Vapor Survey	D	Photovac HL-2000	Upgrade to Level C with HNU readings over 10 ppm for 5 minutes in breathing space.

Note: Breathing space PID readings of 50 ppm will result in shutting down the job and consulting with State officials and the client.

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

Specific protective equipment for each level of protection is as follows:

Level C: Full Face Respirator w/appropriate cartridge (Willson T45)
Chemically Resistant Suit (Tyvek)
Outer Rubber Slush Boots
Outer Chemically Resistant Gloves
Surgical Gloves
Hard Hat
Steel Toe/Shank Work Boots

Modified Level D: Chemically Resistant Suit (Tyvek)
Outer Rubber Slush Boots
Outer Chemically Resistant Gloves
Surgical Gloves
Hard Hat
Steel Toe/Shank Work Boots
Safety Glasses or Face Shield

Level D: Work Clothes
Steel Toe/Shank Work Boots
Surgical Gloves
Hard Hat

Rationale for change in level of protection:

Upgrade to Level C with PID readings of 10 ppm or more for 5 minutes in the breathing space.
PID readings of over 50 ppm in the breathing space will result in shutting down the job and consulting with State officials and the client.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER OR DESIGNEE.

Monitoring Procedures

Site Monitoring Equipment:

☒ PID (Photovac MicroTIP HL-2000, 10.6 eV lamp)
☐ Explosimeter
☐ Draeger Tube & Pump
☐ O2 Meter
☐ Other:

Methods and Frequency of Monitoring:

Air space and soil samples will be monitored with an Photovac HL-2000
Frequency: Soil samples; as obtained.
Air; not to exceed every 15 minutes.

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Decontamination and Disposal

Personnel Decontamination Procedure:

- _____ Level C: Slush boot and glove wash, slush boot and glove rinse, tape removal, outer glove removal, (cartridge change), slush boot removal, suit removal, inner glove removal.
- _____ Modified Level D: Slush boot and glove wash, slush boot and glove rinse, slush boot removal, suit removal, glove removal.

Equipment Decontamination:

Equipment will be decontaminated by washing with soap and water.

Disposal Procedure for Investigation-Derived Materials:
(decon waste, disposables)

All decon waste and disposables will remain on-site.

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SITE OPERATING PROCEDURES/SAFETY GUIDELINES

- ** Always observe the buddy system. Never enter or exit site alone, and never work alone in an isolated area. Never wander off by yourself.
- ** Always maintain a line-of-sight.
- ** Practice contamination avoidance. Never sit down or kneel, never lay equipment on the ground, avoid obvious sources of contamination such as puddles, and avoid unnecessary contact with on-site objects
- ** No eating, drinking, or smoking outside the designated "clean" zone.
- ** In the event PPE is ripped or torn, work shall stop and PPE shall be removed and replaced as soon as possible.
- ** Be alert to any unusual changes in your own condition; never ignore warning signs. Notify Health and Safety Coordinator as to suspected exposures or accidents.
- ** A vehicle will be readily available exclusively for emergency use. All personnel going on-site shall be familiar with the most direct route to the nearest hospital.
- ** In the event of direct skin contact, the affected area shall be washed immediately with soap and water.
- ** Copies of the Health and Safety Plan shall be readily accessible at the command post.
- ** Note wind direction. Personnel shall remain upwind whenever possible during on-site activities.
- ** Never climb over or under refuse or obstacles. Use safety harness/safety lines when sampling lagoons, stream beds, and ravines with steep banks.
- ** Hands and face must be thoroughly washed before eating, drinking, etc.
- ** Any modifications to this safety plan MUST be approved by the Site Safety Officer.

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

Special Procedures:
Confined Space Entry

X No attempt will be made to enter abandoned buildings, manholes, tanks, or any other confined areas.

 Other:

Personnel Monitoring: (If applicable: Heat stress, frostbite, air sampling of individual breathing zone)

Monitoring of individual breathing space will be monitored with a Photovac HL-2000 as outlined in monitoring procedures.

EMERGENCY SITUATIONS

The following standard emergency procedures will be used by Dufresne-Henry on-site personnel. The Site Safety Officer (SSO) shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury to Dufresne-Henry Employees in the Exclusion Zone

Upon notification of an injury to a Dufresne-Henry employee in the exclusion zone, a rescue team will enter the zone (if required) to remove the injured person to the hotline. The SSO and Project Manager should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the support zone. The SSO shall arrange for appropriate first aid, and contact should be made for an ambulance and with the designated medical facility (if required). No Dufresne-Henry personnel shall re-enter the exclusion zone until the cause of the injury or symptoms are determined.

Personnel Injury to Dufresne-Henry Employees in the Support Zone

Upon notification of an injury to a Dufresne-Henry employee in the support zone, the Project Manager and SSO will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with the on-site Field Team Leader initiating the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk to others, all Dufresne-Henry personnel shall move to the decon line for further instructions. Dufresne-Henry activities on-site will cease until the added risk is removed or minimized.

Fire/Explosion

Upon notification of a fire or explosion on-site, all Dufresne-Henry personnel will assemble at the decon line. The fire department shall be alerted and all Dufresne-Henry personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure

If any Dufresne-Henry site personnel experience a failure or alteration of protective equipment that effects the protection factor, that person and his/her buddy shall immediately leave the exclusion zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure

If any other equipment on-site fails to operate properly, the Project Manager and SSO shall be notified and then determine the effect of this failure on continuing operations on-site. If the failure affects the safety of on-site Dufresne-Henry personnel or prevents the completion of the tasks, all Dufresne-Henry personnel shall leave the exclusion zone until the situation is evaluated and appropriate actions taken.

In all situations, when an on-site emergency results in evacuation of the exclusion zone, Dufresne-Henry personnel shall not re-enter until:

1. The conditions resulting in the emergency have been corrected.
2. The hazards have been reassessed.
3. The Site Safety Plan has been reviewed.
4. Dufresne-Henry personnel have been briefed on any changes in the Site Safety Plan.

PROJECT: HILLSIDE ELEMENTARY SCHOOL
JOB NO.: 414026

EMERGENCY INFORMATION

AMBULANCE: Phone:

HOSPITAL: Phone:
Directions (attach map)

POLICE: Phone:

FIRE DEPARTMENT: Phone:

POISON CENTER: Phone:

ANR INCIDENT RESPONSE: Phone:

CORPORATE:

Dufresne-Henry N. Springfield, VT Phone: (802) 886-2261

Project Manager: Bruce Cox

NEAREST PHONE: At the School

LOCATION OF ON-SITE FIRST AID KIT:

EMERGENCY VEHICLE: The designated emergency vehicle on-site shall be that of the Dufresne-Henry, Inc. representative.

PROJECT:
JOB NO.:

The following individuals have read this safety document and are familiar with its contents, site conditions, and on-site safety procedures (please sign below):

Company

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Copies of this SSP have been given to:

Approval Signatures:

PM _____
Div. Dir. _____

Proposed Work Plan
Initial Site Investigation

HILLSIDE ELEMENTARY SCHOOL
NEWPORT, VERMONT

This work plan outlines the soil vapor survey program the Initial Site Investigation at the Hillside Elementary School in Newport, Vermont. The tank closure assessment of one (1) 6,500 gallon #2 heating oil UST was performed by Dufresne-Henry, Inc. on May 17, 1994. The tank was found to contain numerous perforations. Contamination of soil and groundwater was identified. PID readings of up to 56 ppm were observed at the tank bed. Four test pits excavated around the tank showed PID readings of 10 ppm to 60 ppm. The excavation was refilled pending additional investigations.

Because of limited site accessibility created by on-going constriction at the school and subsurface utilities, a soil vapor survey is proposed. All field personnel are OSHA certified for hazardous site operations under 29 CFR part 1910.120.

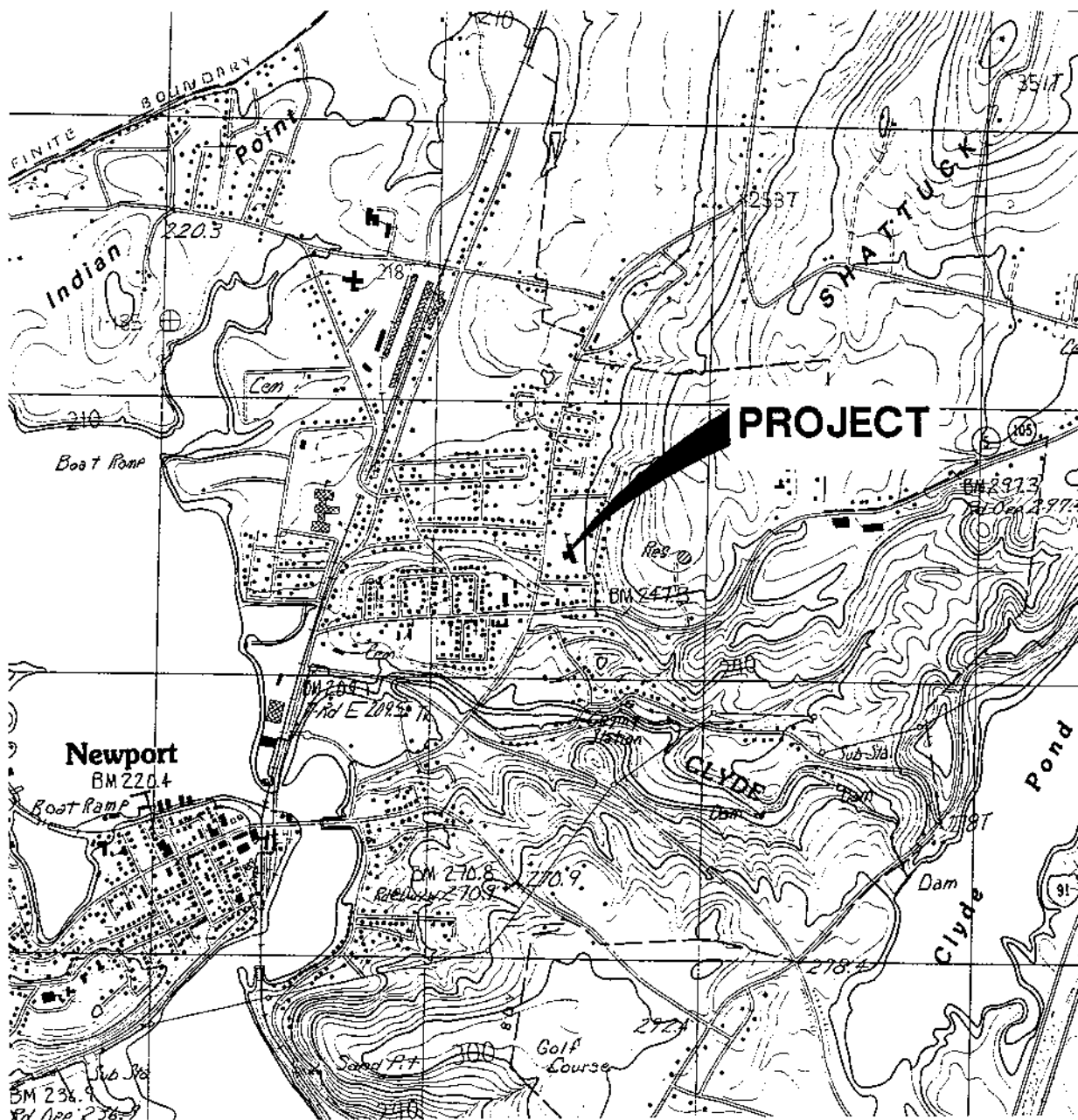
SOIL VAPOR SURVEY

A soil vapor survey will be performed by using a small diameter hand operated pigtail auger. The location of all probes will be approved by a School representative. The borehole will be screened for VOC's with a Photovac MicroTIP HL-2000 photoionization detector (10.6 eV lamp, calibrated with isobutylene). Total depth a each probe will be determined by site restrictions and the soil encountered. It is not expected that the groundwater table will be reached. Soil samples for chemical analysis will be collected if VOC activity is observed. Analysis will be performed by the State of Vermont ANR laboratory.

RECEPTOR STUDY

A field investigation will be performed to determine potential receptors. Potential receptors include wells, streams, and basements. An attempt will be made to access and screen any basement that may be effected. Any potentially impacted wells identified during the investigation will be sampled and analyzed for VOC's by EPA Method 8020. The analysis will be performed by the VT ANR laboratory.

ATTACHMENT B
SITE LOCATION MAP



PLAN
1:24,000

TAKEN FROM A USGS QUAD. SHEET FOR NEWPORT, VT



Duffin-Henry, Inc.

Precision Park
No. Springfield,
Vermont 05350

Tel. 1802/886-2261

Fax 1802/886-2260

SITE LOCATION MAP
FOR

HILLSIDE ELEMENTARY SCHOOL

NEWPORT,

VERMONT

Project No. 414028

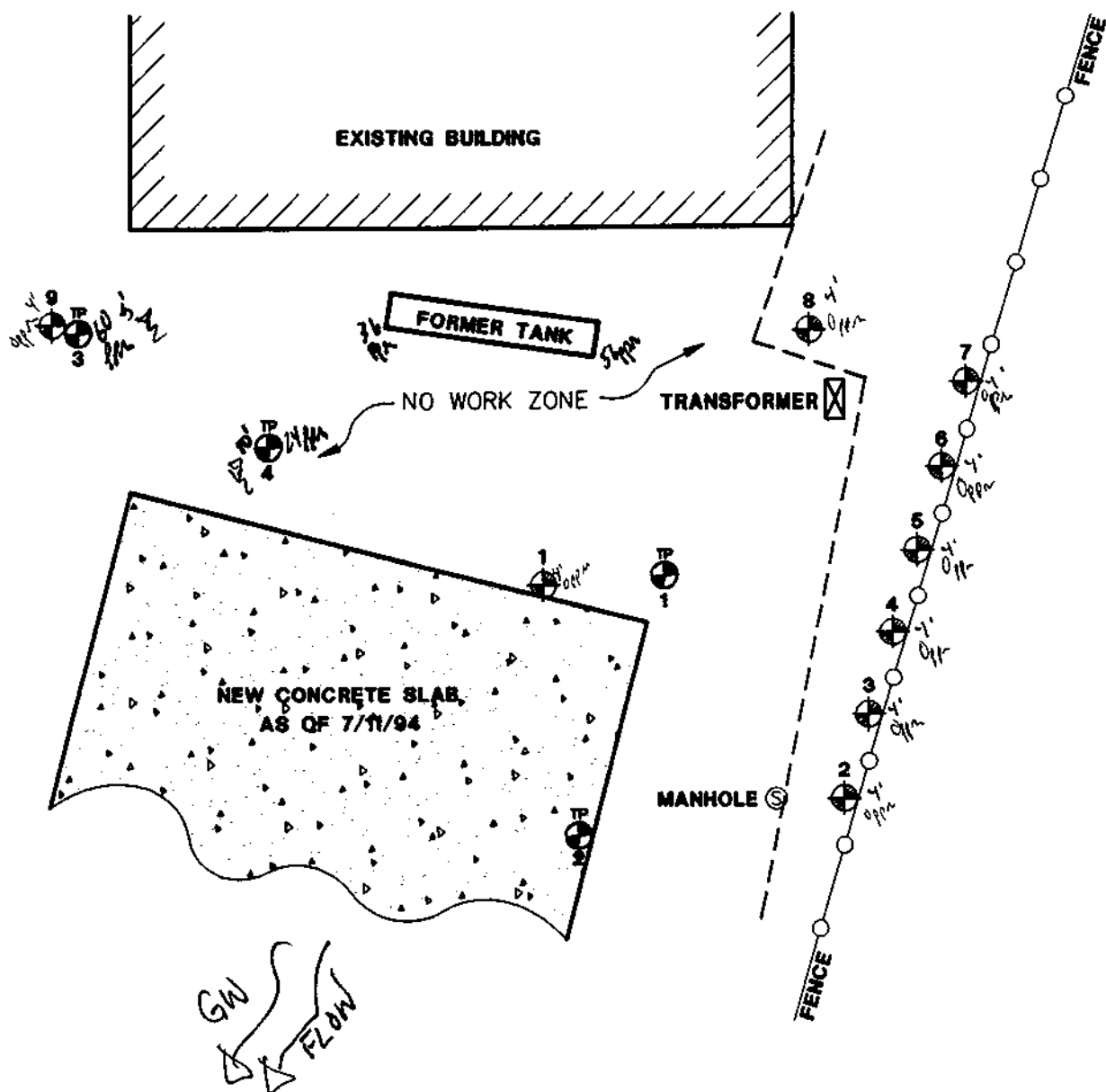
Proj. Mgr. B.H.C.

Date 7/94

A

ATTACHMENT C

SITE SKETCH



NOTE: #1 AND #9 WERE DRILLED AT APPROVED LOCATIONS WITHIN THE NO WORK ZONE.

LOCATION	DEPTH	SOIL (PPM)	HOLE (PPM)	ODOR
1	COULD	NOT DRILL		
2	4'	0.0	0.0	NONE
3				
4				
5				
6				
7				
8				
9				

LEGEND

- LIMIT OF NO WORK ZONE
- ⊕ SOIL VAPOR PROBE (7/11/94)
- ⊙ TEST PIT (5/19/94)

SCALE: 1" = 20'